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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/088,725	08/05/2002	Ian Bradford	US57.0359-WO	6934

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Schlumberger Doll Research
Intellectual Property Law Department
36 Old Quarry Road
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EXAMINER

LE, TOAN M

ART UNIT PAPER NUMBER

2863

DATE MAILED: 05/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/088,725

Applicant(s)

BRADFORD ET AL.

Examiner

Toan M Le

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 August 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 12-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 18-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions, which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-11 and 18-21, drawn to a method for updating an earth model.

Group II, claim(s) 12-17, drawn to a method for drilling a borehole.

Group I is related to a method for updating an earth model comprising an earth model having a predetermined trajectory of a borehole for evaluation with data gathering during the construction of the borehole to update the earth model prior completing construction of the borehole.

Group II is related to a method for drilling a borehole using an earth model.

2. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

3. During a telephone conversation with William Wang on 5/20/03 a provisional election was made with traverse to prosecute the invention of **I, claims 1-11 and 18-21**. Affirmation of this election must be made by applicant in replying to this Office action. **Claims 12-17** are

withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-11 and 18-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Malinverno et al.

Referring to claims 1 and 18, Malinverno et al. disclose a method and a computer readable medium that is capable of causing a computer to perform the method for updating an earth model (Abstract and figure 1) comprising the steps of: obtaining an earth model used for predicting potential problems in drilling of a borehole having a predetermined trajectory, the earth model comprising a plurality of components (col. 4, lines 58-62; col. 13, lines 36-

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38); obtaining evaluations of the state of the borehole and local geological features, the evaluations being based on the earth model (col. 13, line 39); receiving data gathered during the construction of the borehole (col. 13, lines 53-56); comparing the evaluations with a diagnosis of the state of the borehole and local geological features to identify at least one inconsistency, the diagnosis being based on the received data (col. 14, lines 22-28); selecting a component of the earth model that is related to the identified inconsistency and has a high degree of uncertainty (col. 13, lines 50-52; col. 14, lines 49-52); and updating the selected component of the earth model prior to completing construction of the borehole using the received data (col. 13, lines 40-42).

As to claim 2, Malinverno et al. disclose a method for updating an earth model wherein the evaluations of the state of the borehole and local geological features include predictions of one or more conditions under which the borehole will fail (col. 5, lines 8-11).

Referring to claim 3, Malinverno et al. disclose a method for updating an earth model wherein the predictions are obtained by combining the earth model with the predetermined trajectory of the borehole (col. 5, lines 21-33).

As to claim 4, Malinverno et al. disclose a method for updating an earth model further comprising repeating the steps of combining, comparing, selecting and updating until a sufficient match exists between the predicted failure conditions and the diagnoses of the borehole (col. 13, lines 43-46).

Referring to claims 5 and 7, Malinverno et al. disclose a method for updating an earth model wherein the step of combining when repeated uses the updated component of the earth model, and the step of selecting when being repeated, considers components that have been

recently updated as having a lower degree of uncertainty and wherein the selected component is the component having the highest degree of uncertainty of the components that are related to the identified inconsistency (col. 14, lines 49-52).

As to claims 6 and 19, Malinverno et al. disclose a method and a computer readable medium that is capable of causing a computer to perform the method for updating an earth model wherein the step of selecting a component comprises: identifying components of the earth model that are relevant to the identified inconsistency; and ranking the identified components according to the degree of uncertainty (col. 14, lines 49-52).

Referring to claims 8 and 20, Malinverno et al. disclose a method and a computer readable medium that is capable of causing a computer to perform the method for updating an earth model wherein the step of updating comprises effecting the minimum practical changes to the selected component that eliminates an identified inconsistency (col. 14, lines 45-48).

As to claims 9 and 21, Malinverno et al. disclose a method and a computer readable medium that is capable of causing a computer to perform the method for updating an earth model wherein the received data includes the effective density of the drilling used in the construction of the borehole and one at least other parameter, and the step of updating comprises updating the selected component using the effective density and the at least one other parameter (col. 4, lines 58-62; and col. 14, lines 38-41).

Referring to claim 10, Malinverno et al. disclose a method for updating an earth model wherein the diagnosis of the borehole is generated by extensive use of real-time MWD and LWD measurements (col. 14, lines 42-44).

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As to claim 11, Malinverno et al. disclose a method for updating an earth model wherein the step of obtaining an earth model includes generating the earth model (col. 13, lines 35-38).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6,256,603 to Celniker

U.S. Patent No. 6,408,953 to Goldman et al.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan M Le whose telephone number is (703) 305-4016. The examiner can normally be reached on Monday through Friday from 9:00 A.M. to 5:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (703) 308-3126. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-0655.

Toan Le

May 22, 2003


John Barlow
Supervisory Patent Examiner
Technology Center 2800